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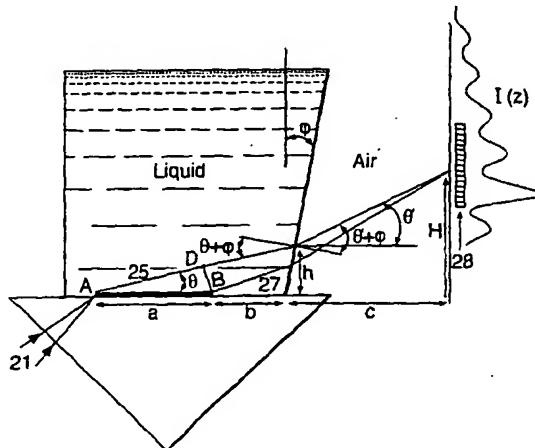
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(57) Abstract: The present invention relates to a system and method for detecting a physical, chemical or biochemical reaction. The system of the present invention comprises a coherent radiation source for producing an incident wave (21); a carrier surface (AB) for supporting a specimen to be analysed, the carrier surface mounted on a substrate and capable of supporting surface electromagnetic waves (SEW); means for splitting the incident wave into an SEW and a first scattered wave (25), wherein the SEW propagates along the carrier surface and interacts with the specimen; means for generating a second scattered wave (27) from the SEW; and, a detector (28) for monitoring the interference between the first scattered wave and the second scattered wave. The invention also relates to carrier surfaces for use on the system. A carrier chip according to the present invention comprises a dielectric substrate; and a conductive film formed on the surface of the substrate suitable for carrying the specimen; wherein the conductive film comprises first means for splitting an incident wave into a first scattered wave and a surface electromagnetic wave (SEW), the SEW propagating along the carrier surface and interacting with the specimen, and a second means for generating a second scattered wave from the SEW.



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